

HOUSE PRICES IN MALAYSIA: DEMAND, SUPPLY AND INFLATION HEDGING ABILITY

by

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TABLE OF CONTENTS

ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS.....	iii
LIST OF TABLES	viii
LIST OF FIGURES	x
LIST OF ABBREVIATIONS	xi
ABSTRAK	xiii
ABSTRACT	xv
CHAPTER ONE INTRODUCTION	1
1.1 Introduction	1
1.2 Background of Study.....	4
1.2.1 Understanding the real estate market	4
1.2.1(a) Characteristics of real estate	5
1.2.1(b) Types of real estate.....	7
1.2.2 Residential real estate in Malaysia.....	10
1.2.2(a) Why residential sector?	10
1.2.2(b) Housing demand in Malaysia.....	13
1.2.2(c) Housing supply in Malaysia	18
1.2.2(d) Housing and inflation	22
1.2.2(e) The Malaysian Housing Policies	23
1.3 Problem Statement	27
1.4 Research Questions	29
1.5 Research Objectives	30
1.6 Significance of Study	31
1.7 Scope of study	32

1.8	Organization of the Study	33
CHAPTER TWO LITERATURE REVIEW		36
2.1	Introduction	36
2.2	Theoretical Literature	37
2.2.1	The basic law of demand and supply for housing	37
2.2.2	Housing market stock-flow theory	39
2.2.3	User cost theory	42
2.2.4	Asset prices and inflation.....	45
2.2.5	Theory of inflation hedging	46
2.3	Empirical Review	49
2.3.1	Fundamental variables of housing demand	49
2.3.1(a)	Studies in the developed Western countries.....	51
2.3.1(b)	Studies in the emerging Asian markets.....	66
2.3.1(c)	Studies in Malaysia	73
2.3.2	Studies related to housing supply	80
2.3.2(a)	Models of housing supply	80
2.3.2(b)	Estimates of price elasticity of new housing supply	83
2.3.2(c)	Related studies of housing supply in Malaysia	88
2.3.3	Inflation hedging of residential real estate investment	96
2.3.3(a)	Relationship between house price and oil price	104
2.4	Conclusions	109
CHAPTER THREE METHODOLOGY		112
3.1	Introduction	112
3.2	Data	112
3.3	Variable selections	116

3.3.1	Housing demand model.....	117
3.3.2	Housing supply model	119
3.3.3	Inflation-hedging model	122
3.4	Methods of analysis.....	124
3.4.1	Unit root tests.....	124
3.4.2	Estimation techniques	126
3.4.3	Diagnostic tests	129
3.4.3(a)	Serial correlation	129
3.4.3(b)	Heteroskedasticity	130
3.4.3(c)	Normality test	131
3.4.3(d)	Misspecification of functional form.....	132
3.4.3(e)	Stability test.....	133
3.4.4	Test of robustness	134
3.5	Empirical models.....	136
3.5.1	Estimation of housing demand.....	136
3.5.2	Estimation of housing supply	138
3.5.3	Estimation of inflation-hedging	139
3.5.3(a)	Measures of expected and unexpected inflation.....	139
3.5.3(b)	Empirical models	142
CHAPTER FOUR RESULTS AND DISCUSSIONS		145
4.1	Introduction	145
4.2	To determine housing demand factors that affect house prices in Malaysia	146
4.2.1	Descriptive statistics.....	146
4.2.2	Unit root tests	149
4.2.3	Cointegration tests.....	150

4.2.4	Long-run and short-run analyses.....	152
4.2.5	Diagnostic tests	154
4.2.6	Robustness test	157
4.2.7	Discussion	158
4.3	To determine the price elasticity of housing supply in Malaysia.....	159
4.3.1	Descriptive statistics.....	159
4.3.2	Unit root tests	162
4.3.3	Cointegration tests	163
4.3.4	Long-run and short-run analyses	163
4.3.5	Diagnostic tests	166
4.3.6	Robustness test	169
4.3.7	Estimates of price elasticity of new housing supply	170
4.3.8	Discussions.....	171
4.4	To investigate whether investment in Malaysian housing market is hedged against inflations	172
4.4.1	Descriptive statistics.....	172
4.4.2	Unit root tests	173
4.4.3	The effect of actual inflation on housing returns	176
4.4.3(a)	Cointegration tests	176
4.4.3(b)	Long-run and short-run analyses.....	176
4.4.3(c)	Diagnostic tests.....	179
4.4.3(d)	Robustness test	182
4.4.4	The effect of expected inflation on housing returns.....	183
4.4.4(a)	Cointegration tests	183
4.4.4(b)	Long-run and short-run analyses.....	183

4.4.4(c) Diagnostic tests.....	186
4.4.4(d) Robustness test	189
4.4.5 The effect of unexpected inflation on housing returns.....	190
4.4.5(a) Cointegration test	190
4.4.5(b) Long-run and short-run analyses.....	190
4.4.5(c) Diagnostic tests.....	192
4.4.5(d) Robustness test	195
4.4.6 Discussions	196
4.5 Conclusions	197
CHAPTER FIVE CONCLUSION	199
5.1 Introduction	199
5.2 Summary of findings	199
5.3 Contribution of the study.....	201
5.4 Policy implications.....	202
5.5 Research limitations	206
5.6 Recommendation for future studies	207
5.7 Concluding remarks	208
REFERENCES.....	211
LIST OF PUBLICATIONS	

LIST OF TABLES

		Page
Table 1.1	Volume and value of property transactions by sub-sector from 2011–2014.	10
Table 1.2	Malaysian House Price Index and key economic indicators (2000 – 2014)	16
Table 1.3	Housing stocks in Malaysia (2001-2015)	19
Table 1.4	Housing returns and percentage changes in CPI and WTI	23
Table 1.5	New RPGT rates under Budget 2014	25
Table 2.1	Summary of literature on house price determinants in the developed Western countries	59
Table 2.2	Summary of literature on house price determinants in the emerging Asian countries	70
Table 2.3	Summary of studies in Malaysia	78
Table 2.4	Related studies on housing supply	90
Table 2.5	Summary of literature on hedging effectiveness of housing against actual, expected and unexpected inflation	101
Table 2.6	Summary of literature on house prices and oil price	107
Table 3.1	Types of residential dwelling supply	113
Table 3.2	Summary of data used in the study	115
Table 4.1	Descriptive statistics	147
Table 4.2	Unit root tests results	150
Table 4.3	ARDL results	151
Table 4.4	Two stage least squares estimates of house price equation	157
Table 4.5	Descriptive statistics	161
Table 4.6	Unit root tests results	162
Table 4.7	ARDL results	164
Table 4.8	Two stage least squares estimates of housing starts	169
Table 4.9	Price elasticity of new housing supply by housing types	170

Table 4.10	Descriptive statistics and correlations	173
Table 4.11	Unit root tests	175
Table 4.12	ARDL results for the effect of actual inflation on housing returns	177
Table 4.13	Robustness check	182
Table 4.14	ARDL results for the effect of expected inflation on housing returns	184
Table 4.15	Robustness check	189
Table 4.16	ARDL results for the effect of unexpected inflation on housing returns	191
Table 4.17	Robustness check	195
Table 4.18	Summary of hedging against consumer price and energy price inflation	197
Table 5.1	Summary of thesis	210

LIST OF FIGURES

		Page
Figure 1.1	Linkages between housing and macroeconomic	2
Figure 1.2	Types of real estate	7
Figure 1.3	Residential property prices (1995=100), 1988Q1-2015Q3	14
Figure 1.4	House Price Index for four types of houses, 1999Q1-2015Q3 (2000=100)	15
Figure 1.5	Flowchart of research	35
Figure 2.1	Short-run and long-run house price changes	38
Figure 2.2	Stock-flow model of housing	40
Figure 4.1	Annual change in house prices	148
Figure 4.2	Plots of Cumulative Sum of Recursive Residuals	155
Figure 4.3	Plots of Cumulative Sum Squares of Recursive Residuals	156
Figure 4.4	Plots of Cumulative Sum of Recursive Residuals	167
Figure 4.5	Plots of Cumulative Sum Squares of Recursive Residuals	168
Figure 4.6	Plots of Cumulative Sum of Recursive Residuals (actual inflation)	180
Figure 4.7	Plots of Cumulative Sum Squares of Recursive Residuals (actual inflation)	181
Figure 4.8	Plots of Cumulative Sum of Recursive Residuals (expected inflation)	187
Figure 4.9	Plots of Cumulative Sum Squares of Recursive Residuals (expected inflation)	188
Figure 4.10	Plots of Cumulative Sum of Recursive Residuals (unexpected inflation)	193
Figure 4.11	Plots of Cumulative Sum Squares of Recursive Residuals (unexpected inflation)	194

LIST OF ABBREVIATIONS

AFC	Asian Financial Crisis
AIC	Akaike Information Criteria
ARDL	Autoregressive Distributed Lag
ARIMA	Autoregressive Integrated Moving Average
BLR	Base Lending Rate
BMCI	Building Materials Cost Index
BNM	Bank Negara Malaysia
BTS	Built-then-sell
CCC	Certificate of Completion and Compliance
CFO	Certification of Fitness for Occupation
CIDB	Construction Industry Development Board Malaysia
CPI	Consumer Price Index
CUSUM	Cumulative Sum
CUSUMSQ	Cumulative Sum of Squares
DIBS	Developer Interest Bearing Scheme
DOSM	Department of Statistic Malaysia
ECM	Error Correction Model
EGARCH	Exponential Generalized Autoregressive Conditional Heteroskedasticity
EIA	Energy Information Administration
EPU	Economic Planning Unit
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GST	Goods and Services Tax
HPI	House Price Index
JPN	National Housing Department
LTV	Loan-to-value
MHLG	Ministry of Urban Wellbeing, Housing and Local Government
MRRD	Ministry of Rural and Regional Development
MoF	Ministry of Finance

NAPIC	National Property Information Centre
NHP	National Housing Policy
OLS	Ordinary Least Square
REHDA	Real Estate and Housing Developers' Association Malaysia
RPGT	Real Property Gain Tax
SBC	Schwartz Bayesian Criteria
SPNB	Syarikat Perumahan Negara Berhad
STB	Sell-then-build
WTI	West Texas Intermediate Crude Oil

HARGA RUMAH DI MALAYSIA: PERMINTAAN, PENAWARAN DAN KEUPAYAAN LINDUNG NILAI TERHADAP INFLASI

ABSTRAK

Kajian ini bertujuan untuk mengkaji harga rumah di Malaysia dari tiga aspek iaitu permintaan perumahan, penawaran perumahan dan pulangan pelaburan pasaran perumahan untuk tempoh 2000Q1 hingga 2015Q4. Model empirikal direka berdasarkan pendekatan Autoregressive Distributed Lag (ARDL). Dari segi permintaan, keputusan menunjukkan bahawa harga rumah ditentukan oleh populasi dan kuantiti stok perumahan. Sementara itu, faktor-faktor ekonomi yang lain seperti pendapatan and kadar faedah menunjukkan peranan yang kurang nyata dalam menentukan harga rumah jangka panjang di Malaysia. Dasar perumahan kerajaan iaitu cukai keuntungan harta tanah adalah tidak berkesan untuk menangani dan mengawal kenaikan harga rumah. Dari segi penawaran, penawaran rumah baru boleh dijelaskan oleh harga rumah dan kos pembinaan. Kenaikan harga rumah meningkatkan kuantiti perumahan baru tetapi magnitudnya adalah kurang daripada satu. Ini menunjukkan bahawa penawaran rumah baru adalah tidak anjal di Malaysia. Antara empat jenis rumah, penawaran rumah bertingkat tinggi mencatatkan keanjalan penawaran tertinggi manakala penawaran rumah berkembar mempunyai keanjalan penawaran terendah. Keputusan ini menunjukkan bahawa kenaikan harga rumah di Malaysia adalah disebabkan oleh penawaran rumah yang tidak anjal. Oleh itu, kerajaan harus memperkenalkan dasar yang boleh mempercepatkan pembangunan rumah baru di negara ini. Akhirnya, untuk aspek pelaburan, inflasi harga pengguna dan inflasi harga tenaga digunakan untuk mengkaji keupayaan

lindung nilai inflasi pulangan perumahan. Keputusannya menunjukkan bahawa pelaburan dalam pasaran perumahan di Malaysia tidak melindungi pelabur daripada inflasi harga pengguna dan inflasi harga tenaga dalam jangka panjang. Hanya pulangan dari rumah berkembar menunjukkan keupayaan lindung nilai inflasi dalam jangka panjang manakala pulangan dari rumah teres menunjukkan keupayaan lindung nilai terhadap inflasi harga tenaga dalam jangka pendek. Pulangan dari semua jenis rumah tidak berkeupayaan untuk melindungi inflasi dijangka and tidak dijangka dalam jangka masa panjang. Rumah betingkat tinggi and rumah teres menjadi lindung nilai yang berkesan terhadap inflasi harga pengguna dijangka dalam jangka pendek sementara hanya rumah teres menunjukkan tanda untuk lindung nilai inflasi harga tenaga tidak dijangka dalam jangka masa pendek. Pada kesimpulannya, pelaburan di pasaran perumahan Malaysia tidak menyokong pandangan tradisional bahawa perumahan adalah aset lindung nilai inflasi.

HOUSE PRICES IN MALAYSIA: DEMAND, SUPPLY AND INFLATION HEDGING ABILITY

ABSTRACT

This study aims to examine house prices in Malaysia from three aspects which are housing demand, housing supply and housing returns over the sample period from 2000Q1 to 2015Q4. The empirical models are designed based on Autoregressive Distributed Lag (ARDL) approach. The results show that, on the demand side, house prices are mainly driven by population and quantity of housing stock, while economic factors such as income and interest rate appear to display a less significant role in determining long-run house prices in Malaysia. Government housing policy i.e. the real property gain tax appears to be ineffective in controlling house price appreciation. On the supply side, new housing supply can be explained by house price and construction cost. An increase in house price increases the quantity supplied of new houses but the magnitude is less than unity showing that new housing supply is price inelastic in Malaysia during the sample period. Among the four types of houses, supply of high-rise houses has the highest elasticity while supply of detached houses has the lowest elasticity. The findings imply that substantial rise in house prices in Malaysia could be due to inelastic supply of housing in the country. Thus, government should develop policies to accelerate the supply of new houses. Lastly, for investment aspect of housing market, effects of consumer price inflation and energy price inflation are used to examine the inflation hedging ability of housing returns. The results show that investment in Malaysian housing market is neither hedged against consumer price inflation nor energy price

inflation in the long-run. Only returns from detached houses show inflation hedging ability in the long-run while returns from terraced houses provides the ability to hedge against energy price inflation in the short-run. Housing returns for all types of houses have not showed the sign to hedge the expected and unexpected components of both types of inflations in the long-run. The high-rise and terraced houses emerge to be an effective hedge against expected consumer price inflation in the short-run while only terraced houses show the sign to hedge the unexpected energy price inflation in the short-run. As such, it is concluded that investment in Malaysian housing market has not supported the traditional view that housing is an inflation hedge asset.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Residential real estate or housing is the largest component of the real estate sector and plays an important role to a country's economy in terms of employment, capital market, consumption, and financial wealth, thus, stimulating the business cycle. The important role of housing market has been shown in the last two crises, the Asian Financial Crisis (AFC) and Global Financial Crisis (GFC) (Cheong et al., 2014). Poterba (1991) has declared that movement of house prices largely affect household wealth and potentially consumer spending. Changes in the level of house prices may have significant impact on a country's economy.

According to Song (2014), housing impacts the macroeconomic activity through several channels: (1) consumption channel through the wealth effect, (2) financial market channel through the collateral effect from credit in balance sheet, and (3) residential construction investment channel through Gross Domestic Product (GDP). The linkages between housing and macroeconomic activity can be modeled through a circular flow diagram, as illustrated in Figure 1.1. In this model, housing and macroeconomic activity are interdependent where the shocks in the demand and supply of housing sector would affect private consumption, residential investment, and financial credit markets, which eventually lead to changes in GDP. Subsequently, the changes in GDP will affect the demand and supply of housing sector in a circular process.

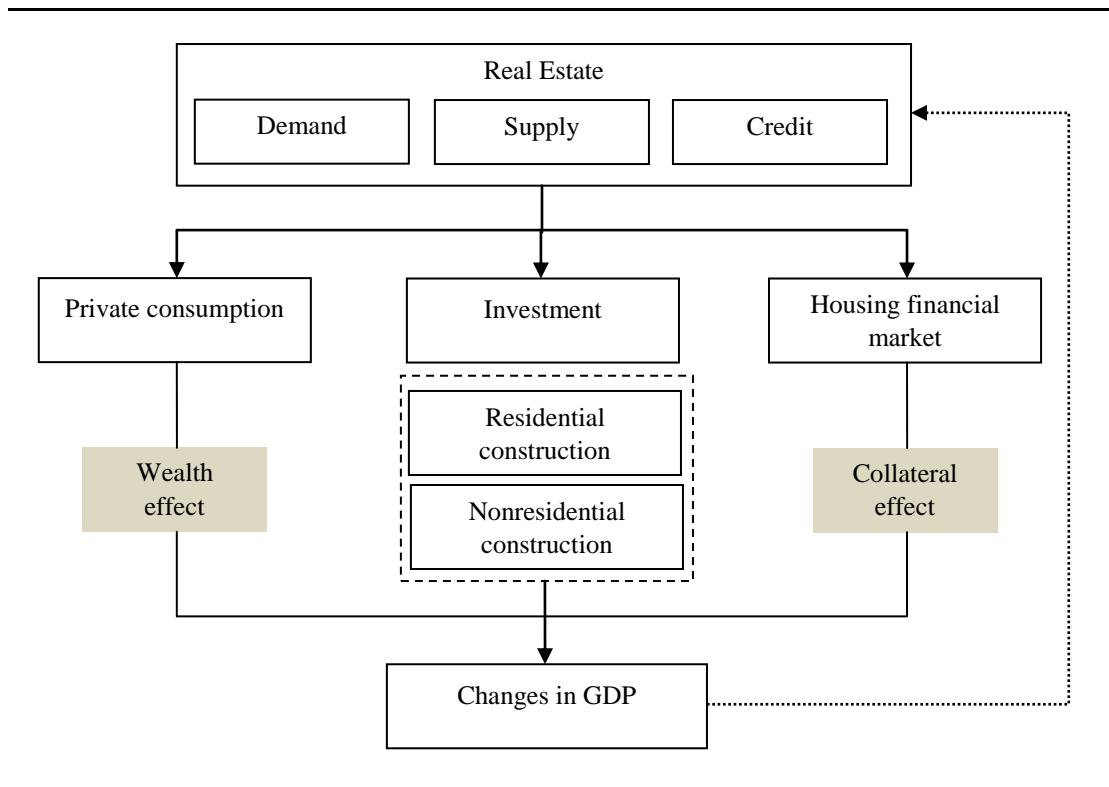


Figure 1.1 Linkages between housing and macroeconomic.

According to Goodhart and Hofmann (2008), the two most important transmission channels between house price changes and real economy is through the wealth effect and collateral effect. Wealth effect explains the link between consumption and house prices. The increase in house prices lead to increase in housing wealth and thus household consumption spending. Hence, large capital gains or losses on houses can lead to large fluctuations in household wealth and could influence private consumption expenditure and the level of aggregate demand (Poterba, 1991; Otto, 2007; Kajuth et al., 2013). On the other hand, collateral effect explains the link between credit and house prices. Residential properties are commonly used as collateral for loans. An increase in house prices increases the value of collateral and allows households to borrow more. Consequently, households could enhance their borrowing capacity and affect the aggregate demand through

greater spending and consumption (Goodhart and Hofmann, 2008; Anundsen and Jansen, 2013).

Moreover, the most direct effect of house price fluctuations on economic activity is explained through residential investment. When house prices rise, the relative value of housing to construction costs is higher and new housing construction becomes profitable. This induces more residential investments by firms and property developers. As house prices rise, the higher value of collateralized property provides greater ability for firms to borrow and finance business investment. Therefore, residential investment is positively linked to house prices (Poterba, 1991; Goodhart and Hofmann, 2008).

Besides that, linkages between house prices and aggregate economic activity are shown by wealth effect through consumption and investment and collateral effect through financial market. Due to a large amount of income is spent on purchasing a house by each individual household, the fluctuations in house prices tend to have greater wealth effect than other financial assets (Glindro et al., 2011). Barkham (2012) also argued that residential real estate or housing have more significant impact on the economy than commercial real estate. Hence, a substantial decline in house prices may cause significant fluctuations in wealth and significant wealth effects that could damage macroeconomic and financial stability.

In addition, for individual households, housing serves two important features, as a consumption good (for shelter) and as an investment asset. As a shelter, homeowners gain in terms of getting to live in the house. As an investment good, housing generates income for investors in terms of rental and capital gains. With the relatively high price of housing to typical households' income, most housing

purchases are financed with mortgages. Therefore, for most households, owning a house could be the largest financial asset and the greatest financial liability at the same time.

In view of the above mentioned this research is carried out to better understand the movements of house prices in Malaysia from three aspects which are housing demand, housing supply and housing returns. It aims to find out whether changes in house prices can be explained by demand and supply fundamentals. Furthermore, this study aims to examine the investment perspective of the housing market to find out if housing is an effective inflation-hedging asset. The following section provides an overview of the real estate market and housing market in Malaysia. It is followed by the statement of research problem in Section 1.3. Next, research questions and research objectives are outlined in Sections 1.4 and 1.5, respectively. Finally, significance of study and scope of study are discussed in Sections 1.6 and 1.7, respectively.

1.2 Background of Study

1.2.1 Understanding the real estate market

According to DiPasquale and Wheaton (1996), real estate is defined as the national stock of buildings, the land on which buildings are built, and all vacant land. On the other hand, Baum (2015) refers an estate as the common law term for someone's property. Furthermore, a property is someone's belonging and the owner of that property has the right to consume, alter, share, rent, mortgage, sell, and exchange or transfer the property (Baum, 2015). Based on English common law, real

property refers to land and the improvements, such as buildings, made to it. Real property is termed differently in other countries' law. Scottish law terms it as 'heritable property', while the term 'immovable property' is commonly used in most European countries, the US, Canada, Russia and India. Hence, real estate means real property. Baum and Crosby (1995) clarified that property is the term commonly used in the UK and many Commonwealth countries whereas the term real estate is commonly used in North America, Australia and elsewhere.

More specifically, Galaty et al. (2003) defined real property as the interest, benefits, and rights inherent in the ownership of real estate. They mentioned that the terms real property and real estate can be used interchangeably. In Malaysia, Usilappan (2006) and Mar Iman (2012) referred property as real estate and used them interchangeably. For this study, property and real estate have the same meaning.

DiPasquale and Wheaton (1996) distinguished real estate between the market for real estate use and the market for real estate assets. In the market for real estate use, real estate buildings are regarded as consumption good whereby space is rented or purchased for occupancy. Alternatively, in the market for real estate assets, real estate buildings are bought and sold as investments. As such, real estate could be consumption good and investment good at the same time.

1.2.1(a) Characteristics of real estate

Real estate has the following characteristics:

i. Immobility

Land and buildings are fixed in a location and cannot be moved. Because the finished real estate products cannot be relocated, the value of real estate is highly associated with location. More urbanized areas and better facilities such as road networks in a

location may increase buyers' preferences towards that location. If a location is suitable, real estate products will have greater demand and higher price (Mar Iman, 2012).

ii. Illiquidity

Unlike stocks and bonds, real estate is not a liquid investment as it cannot be quickly sold and converted to cash (Collier et al., 2002). Baum and Crosby (1995) explained that indivisibility of property as investment contributes to the illiquidity of property. Moreover, selling a property also involves high transaction cost such as stamp duty, legal fees, and agent's commission compared to other investment alternatives. These make ownership and disposal of real estate to take a longer time than other types of investments.

iii. Durability

Real estate products can be consumed over a long period of time. Besides that, the value of real estate does not deteriorate easily. Due to scarcity of land, price of land appreciates over time making the net value of real estate to rise even though the value of the physical buildings is subject to obsolescence. As such, real estate can be a store of value even though it is left vacant (Baum, 2015) and it is suitable for long-term investment (Mar Iman, 2012).

iv. Inelastic supply

The supply of new real estate is provided by the construction sector. In the short-run, supply of new real estate is relatively inelastic. It responds slowly to changes in demand because construction of new buildings requires time for designing and planning (Mar Iman, 2012). Hence, with a relatively fixed supply of new buildings, prices will rise when demand rises.

1.2.1(b) Types of real estate

There are broad categories of asset under the real estate market. Five main sub-sectors of real estate are residential, commercial, industrial, agriculture, and development land and others. They are depicted in Figure 1.2 and are explained as follows based on their purpose of usage:

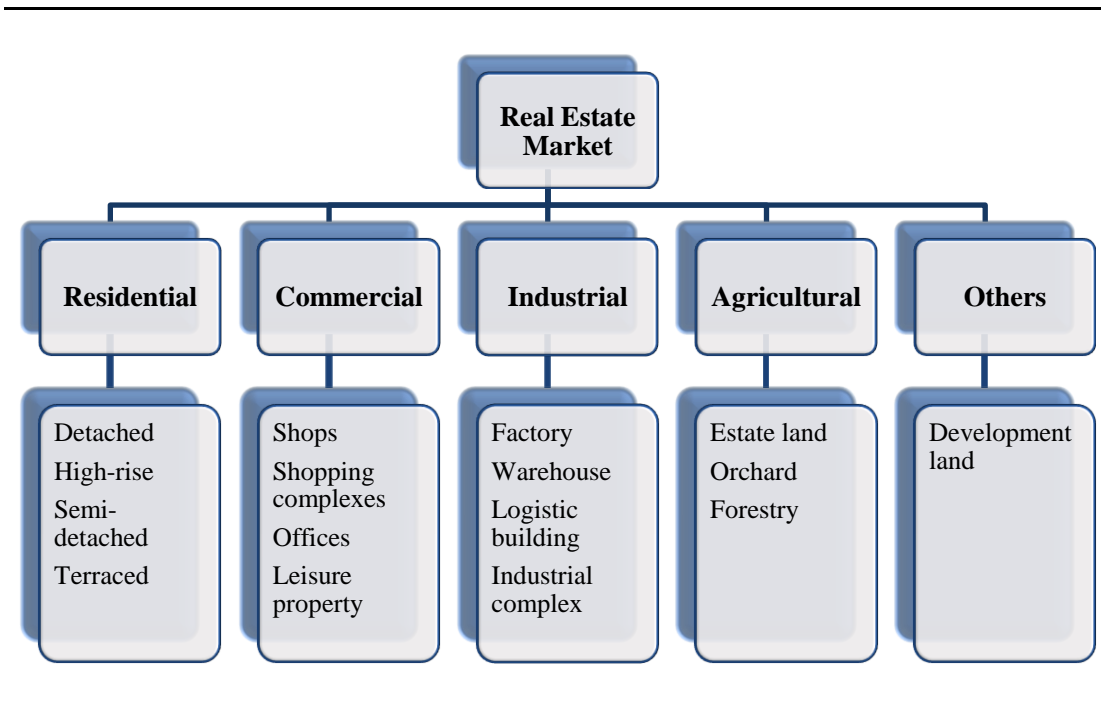


Figure 1.2 Types of real estate
Source: Author's own drawing

i. Residential real estate

Residential real estate refers to dwelling units mainly owned by private households for personal use. Jowsey and Furness (2015) recognized residential sector as a profitable investment through buy-to-let strategy because house prices rise over time. Residential real estate in Malaysia is divided into four types namely detached, high-rise, semi-detached, and terraced houses. Under this classification, detached house is a standalone landed property, which has open spaces on all sides. It covers the largest area of land. It is also commonly known as bungalow in Malaysia. Semi-

detached are pairs of houses build side-by-side while terraced houses are houses build in rows with shared side walls. The first and last units of terraced houses are corner lots that have a larger area than the middle lots. Detached, semi-detached, and terraced houses are considered as landed properties that are usually built one- to three-stories high. High-rise dwellings are flats or guarded apartments and condominiums that are usually seen in urban areas with limited land. Apartments and condominiums are normally equipped with facilities such as security guard, swimming pool, gym equipment, closed-circuit television (CCTV), tennis court, etc. compared to low cost flats, which are not equipped with any facility¹.

ii. Commercial real estate

Commercial real estate is property used for carrying out or performing business activities (Dunhill et al., 2015). It is a sector that provides places for people to work, shop, and enjoy leisure activities. The different types of commercial real estate available in Malaysia are shops, shopping complexes, purpose-built office block, and leisure properties such as hotels and restaurants². According to Dunhill et al. (2015), commercial property is more desired by investors compared to residential property because it could be let out to tenants and commercial property owners would benefit from receiving rental income besides earning profit through capital appreciation.

iii. Industrial real estate

Industrial real estate can be used for a variety of purposes and the most common uses are production, manufacture, storage, distribution, energy production,

¹ Refer to Ministry of Tourism from Malaysia, My Second Home: <http://www.mymm2h.com/property/type-of-houses.html>, accessed on 21 December 2015.

² Refer to Property Market Report (First Half 2015), Valuation and Property Services Department (JPPH), Ministry of Finance Malaysia.

and waste disposal (Dunhill et al., 2015). Properties under industrial real estate include factories, warehouses, and logistic buildings. Warehouses are large open space buildings with loading bays, which are used for storage of goods from manufacturers and traders. On the other hand, logistic buildings are used for local and international transit and distribution of goods. Industrial real estate in Malaysia is divided into factory, warehouse, industrial complex, flatted factory, and industrial plot. Jowsey and Furness (2015) pointed out that industrial property is less popular for investment compared to other types of real estate because many factories are built for a specific purpose and it is difficult to find a similar tenant.

iv. Agriculture real estate

Agriculture real estate is used for planting and harvesting crops or feeding and managing livestock. This sector includes fishing, farm lands and forestry properties. In Malaysia, agriculture real estate consists of forestry, orchard, land for small holdings of agriculture products such as rubber, oil palm, paddy, coconut, cocoa and pineapple, and estate land for commercial crops such as rubber, oil palm, and cocoa. Besides that, it also includes land in rural areas for rural residential and agricultural uses³.

v. Development land and others

The development land in Malaysia refers to the approved lands for the purpose of residential, commercial, industrial or for other usages.

³ Refer to Technical Notes of Property Market Report (First Half 2012), Valuation and Property Services Department (JPPH), Ministry of Finance Malaysia..

1.2.2 Residential real estate in Malaysia

1.2.2(a) Why residential sector?

Residential real estate or housing is the focus of this research. There are several reasons residential sector in Malaysia is selected. First, residential sector is the largest sub-sector compared to other real estate sub-sectors. In Malaysia, residential real estate contributes the highest number of transaction and the highest value recorded in comparison to other sub-sectors. In 2014, residential real estate contributed a total volume of 247,251 or 64.4% of total shares in the real estate market. This was followed by agricultural, commercial, and development and others, which formed 18.8%, 9.3%, and 5.5%, respectively, of total property sales. Industrial property was the smallest sub-sector in the property market that offered 2.1% of the total property market shares.

Table 1.1 Volume and value of property transactions by sub-sector from 2011–2014.

Sub-sectors	2011	2012	2013	2014
<i>Volume (%), units</i>				
Residential	268,789 (62.7)	272,669 (63.8)	246,225 (64.6)	247,251 (64.4)
Agricultural	84,726 (19.7)	80,679 (18.9)	70,698 (18.5)	72,104 (18.8)
Commercial	43,674 (10.1)	41,082 (9.6)	34,298 (9.0)	35,528 (9.3)
Development land/others	21,735 (5.0)	23,106 (5.4)	21,491 (5.6)	21,040 (5.5)
Industrial	10,479 (2.4)	9,984 (2.3)	8,418 (2.2)	8,100 (2.1)
Total	430,403 (100)	427,520 (100)	381,130 (100)	384,060 (100)
<i>Value (%), RM million</i>				
Residential	61,831.56 (44.9)	67,762.20 (47.4)	72,060.41 (47.3)	82,059.59 (50.4)
Agricultural	18,822.92 (13.7)	14,278.87 (10.0)	13,283.43 (8.7)	12,723.37 (7.8)
Commercial	27,636.22 (20.1)	27,792.16 (19.5)	35,561.94 (23.3)	31,835.06 (19.5)
Development and others	17,995.11 (13.1)	21,005.77 (14.7)	19,137.77 (12.6)	21,846.94 (13.4)
Industrial	11,542.23 (8.4)	12,005.93 (8.4)	12,328.57 (8.1)	14,509.42 (8.9)
Total	137,828.04(100)	142,844.94(100)	152,372.12(100)	162,974.38(100)

Source: NAPIC, Annual Property Market Report 2014.

In terms of transaction value, residential real estate contributed more than RM60 billion since 2011 and achieved RM82 billion in year 2014. With the highest transaction value in the real estate market, residential real estate made up 7% of Malaysia's GDP in 2014. The second highest real estate sub-sector, regarding value transacted, was commercial real estate at 19.5%, which was followed by development and others at 13.4% in the year 2014. The transaction of residential real estate is the key driver in the real estate market. The fact that residential real estate plays an important role in the country's economic growth is undeniable. Table 1.1 shows the total volume and value of property transactions for each sub-sector from 2011–2014.

Second, residential real estate is closely related with the financial sector. Increasing house prices give rise to the portion of bank lending in the residential sector. The Malaysian House Price Index (MHPI) indicates that the price increase in 2012 and 2013 were 11.8% and 11.6%, respectively, compared to 1.5% in 2009. At the same time, banks' lending in the residential sector has increased. In 1997, loans approved in the residential property sector were RM20.5 billion and it grew to RM95.2 billion at the end of 2012. The large increase of loans approved for housing sector occurred in 2007 and 2009 with growth of 16.1% and 24.6%, respectively (Paramesran, 2013). This has led to rising household debt-to-GDP from 46% in 2000 to 80.5% in 2012 (Paramesran, 2013). It shows that a typical household has more exposure to residential real estate than to the other sub-sectors. Moreover, even though banks consider housing loans to be less risky because houses are frequently used as collateral and households do not default easily, exposure of banks to residential real estate will be highly risky when house prices decline (Fernandez, 2013).

Third, the continuous rise in the price of residential real estate has seriously impacted housing affordability and it has become one of the government's key concerns under the Eleventh Malaysia Plan. House prices have been escalating after GFC and exceeded the affordable level of Malaysian households. Based on the World Bank standard⁴, Malaysia's housing market was classified as 'seriously unaffordable' in which its median house price-to-household income ratio was 4.4 in 2014. Houses in Kuala Lumpur and Pulau Pinang were classified as 'severely unaffordable' where median house price-to-household income ratio was recorded at 5.4 and 5.2, respectively. Many buyers, especially first-time buyers, are unable to purchase a house. It has subsequently generated concern over the possibility of a housing market bubble, as well as the appropriateness of government policy actions.

Lastly, from the investment perspective, residential real estate is always viewed as an important investment asset in Malaysia. Both Cocco (2005) and Wu and Pandey (2012) agreed that housing is the largest investment for most households in their lifetime. Investment in residential real estate provides several benefits such as diversification towards risk and hedge against inflation (Ibbotson and Siegel, 1984; Mohamad Azmi et al., 2010). Tan and Ting (2004) found that residential real estate is a significant household wealth in Malaysia. They reported that an allocation of 50%–65% in Malaysian residential property, especially in terraced houses, enhances an investment portfolio return and significantly reduces overall risk. Besides that, investing in housing could generate rental income and long-term capital appreciation. Thus, increasing house prices would benefit households and investors.

⁴ The 'affordable' housing market as defined by the World Bank based on the ratio of median house price to median annual household income is 3 times.

1.2.2(b) Housing demand in Malaysia

Malaysia's housing market has shown rapid house price appreciation in the early 1990s due to rapid urbanization, strong economic performance, and liberalization of financial markets (Zhu, 2006). Rapid urbanization led to an increase in demand for housing. The urban population, from the total population in Malaysia, increased from 42.0% in 1980 to 74.7% in 2015 (The World Bank, 2016). With the strong development in property market in 1990s, house prices in Malaysia continued to rise until the first half of 1997. The currency crisis and stock market crash in 1997 caused property prices in most Asian countries to slump and triggered the AFC (Glindro et al., 2011). Excessive bank lending in the real estate market has been pointed out as the main factor leading to the housing market burst during AFC (Collyns and Senhadji, 2002; Koh et al., 2005). Since the 1997 AFC, most Asian governments, including Malaysia, have taken steps to restructure the housing finance system (Zhu, 2006).

Figure 1.3 depicts the Malaysian residential property prices from 1998Q1 to 2015Q2. Development of the Malaysian housing market experienced three phases. Before the AFC, house prices show an average annual growth of 11.4% from 1990Q1–1997Q1. The growth rates increased more than 18% in 1991 and 1995, which outpaced the growth rate of GDP over the same period (Hui, 2010). The rise in house prices continued until the AFC whereby Malaysian housing market experienced the first decline in 10 years (Hui, 2010). After the AFC, Malaysian house prices started to increase in mid-1999. House prices during 2000s increased gradually. The average annual growth rate between 1999Q3 and 2007Q4 was 3.34%. Although the growth rate is not comparable with the rate before AFC, housing market showed the sign of recovery from AFC.

Even though housing markets in most developed Western countries were seriously affected during the 2008 GFC, Malaysian housing market was not so badly affected. During the GFC, house prices in Malaysia generally declined. Nevertheless, it increased rapidly after the GFC with an average annual growth rate of 9.18% between 2009Q4–2015Q2 even though it was not comparable to house prices recorded before AFC.

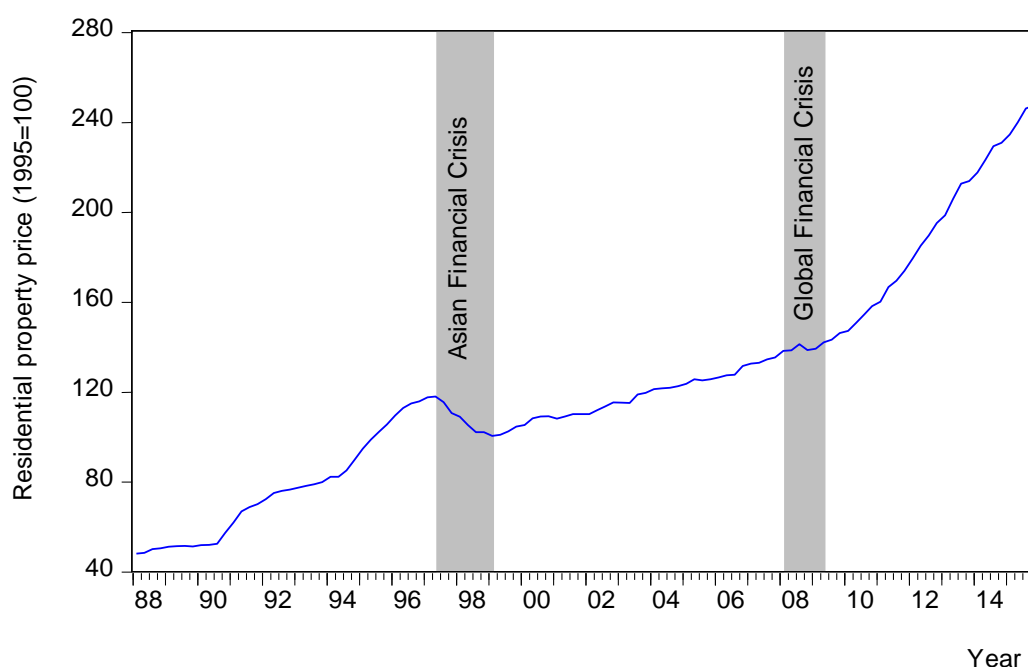


Figure1.3 Residential property prices (1995=100), 1988Q1-2015Q3
Source: Bank of International Settlement (BIS)

Figure 1.4 displays the time series plot of the quarterly house price index for four types of houses between 1999Q1 and 2015Q4. Generally, the graph shows that prices for all types of houses increased steadily during the period, except high-rise houses that dropped in the first half of 2002. Prices of all types of houses slightly fell

at the end of 2008 due to GFC but accelerated since 2009. Among the four types of houses, detached houses showed the highest value while high-rise houses had the lowest value before 2012. However, price of high-rise houses exceeded the price of terraced houses at the end of 2012 and outpaced the value of semi-detached houses at the beginning of 2014. High-rise houses recorded the second highest value in the end of 2015⁵.

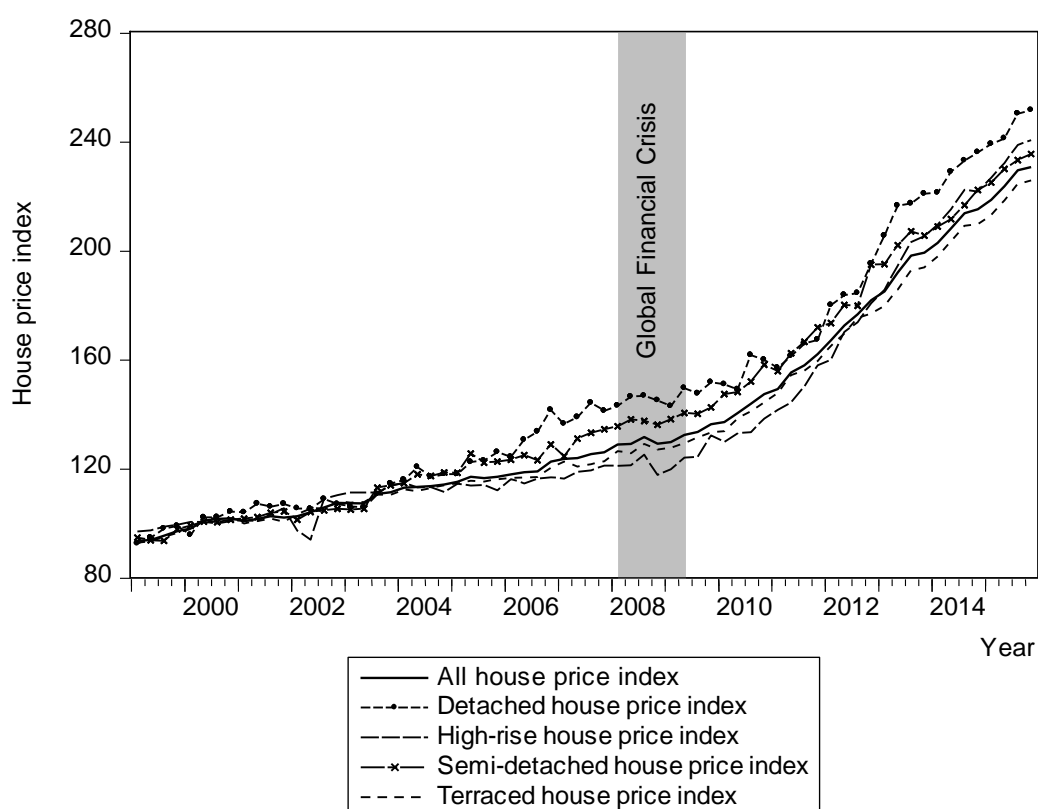


Figure 1.4 House Price Index for four types of houses, 1999Q1-2015Q3 (2000=100). Source: National Property Information Centre (NAPIC).

⁵ Data on volume and value of property transactions by types of housing is not available. As such, it is unable to identify which type of housing has the greatest demand.

There are several reasons for increase in house prices. First, there has been an increasing demand for housing due to rapid urbanization and strong economic growth during that period. As shown in Table 1.2, between 2001 and 2007, Malaysia's annual economic growth was 4%–7%. It contracted by 1.7% during the 2008–2009 GFC and rebounded to grow at 4%–7% after the crisis. According to the World Development Indicators (World Bank, 2016), the urban population in Malaysia has increased to 74% in 2014 against 43% in 1981.

Table 1.2 Malaysian House Price Index and key economic indicators (2000 – 2014)

	House price Index ^a (% change)					GDP ^b (% change)	Urban population ^c (% of total)	GDP per capita ^d (current USD)
	Malaysia	Terraced	Semi- Detached	Detached	High- Rise			
2000	6.0	6.7	6.3	5.3	1.9	8.3	61.98	4,004.56
2001	1.1	0.0	2.6	4.6	2.8	0.3	62.92	3,878.77
2002	2.5	4.7	-0.6	0.8	-5.9	4.1	63.86	4,132.67
2003	4.0	2.9	4.0	1.3	15.1	5.3	64.78	4,431.24
2004	4.8	3.7	9.1	8.7	1.5	7.1	65.69	4,924.59
2005	2.4	2.1	3.5	4.1	1.0	5.2	66.59	5,564.17
2006	1.9	1.6	1.3	6.1	1.2	5.9	67.48	6,194.67
2007	5.3	3.9	7.2	7.2	2.9	6.2	68.36	7,240.68
2008	4.7	4.9	4.1	6.3	2.4	4.6	69.23	8,486.60
2009	1.5	2.0	2.1	-2.3	1.4	-1.7	70.08	7,312.01
2010	6.7	6.5	7.6	7.4	6.2	7.2	70.91	9,069.04
2011	9.9	10.6	9.0	5.2	11.1	5.1	71.74	10,427.76
2012	11.8	11.1	9.2	11.8	21.4	5.6	72.53	10,834.66
2013	11.6	10.0	12.2	16.4	17.3	4.7	73.28	10,973.66
2014	9.4	10.9	7.5	7.5	10.7	6.0	74.01	11,307.06

Source: ^a Property Market Report, National Property Information Centre (NAPIC); ^b Economic Report, Ministry of Finance Malaysia (various years); ^c World Development Indicator, The World Bank; ^d World Development Indicator, The World Bank. It is calculated as GDP/mid-year population.

Second, the ease of accessing credit whereby banks compete to offer a variety of housing loans to meet the preferences of domestic house buyers (Paramesran, 2013). Since the AFC, Malaysia's interest rates have been kept low compared to its historical levels (Fernandez, 2013). Low mortgage rate has been identified as a significant factor leading to the growth of housing finance and house prices in recent years.

Third, as claimed by Yam (2013), the rising costs of production such as building materials and labor costs. Prices of cement and steel are increasing because the industries are monopolized by a few players. According to Ministry of International Trade and Industry (MITI), there are eight major cement manufacturers in Malaysia. They are Lafarge Malaysia Bhd, YTL Cement Bhd, CIMA, CMS Cement Sdn Bhd, Tasek Corporation Bhd, Holcim (M) Sdn Bhd, Hume Cement Sdn Bhd, and Aalborg White Cement Sdn Bhd.. In the steel industry, the leading players are Ann Joo Resources Bhd., Lion Industries Corporation Bhd., CSC Steel Holdings Bhd., Southern Steel Bhd., and Kinsteel Bhd.. The increasing demand for steel and declining in domestic steel production since 2009 have transformed Malaysia to be a net importer of steel mill products (International Trade Administration, U.S. Department of Commerce, 2017).

Fourth, rising land costs has contributed to the speedy increase in house prices (Ministry of Urban Wellbeing, Housing and Local Government, 2013). Scarcity of land causes value of land to increase and subsequently leads to higher prices of housing. This is particularly true for the case in Penang Island whereby the Real Estate and Housing Developers' Association of Penang (Rehda) claimed that the high cost of land was the reason of high house prices in the state (Bernama, 2010).

Fifth, according to Khazanah Research Institute (2015), unresponsiveness of housing supply would be a reason for sharp increase in house prices. Supply of housing is relatively inelastic and responds slowly to changes in demand. This point will be discussed further in Section 1.2.2(c).

1.2.2(c) Housing supply in Malaysia

Housing supply in Malaysia is carried out by both government and private developers. Table 1.3 presents three types of housing stocks in Malaysia (housing starts, housing completions, and existing stocks) between 2001 and 2015. According to Real Estate and Housing Developers' Association Malaysia (REHDA), housing starts are buildings in which the foundation and footing works or piling are started while housing completions are buildings with construction works completed and certification of fitness for occupation (CFO) or certificate of completion and compliance (CCC) is issued within the review period. The expected completion date for landed properties such as terraced, semi-detached, and detached houses is 2 years from the date of sales and purchase (S&P) agreement while for high-rise houses it is 3 years.

As tabulated in Table 1.3, housing completions between 2010 and 2014 are below 100,000 units. This level of new housing completed shows a shortage of housing in relation to the expected demand of 150,000 units per annum (Yam, 2013). Bank Negara Malaysia (BNM) (2015) estimates that between 2011 and 2015, 80,089 units of average housing completions annually were far below the 166,000 average net increase in the number of households. It suggests an annual shortage of 85,911 units of new housing completed over the past five years. The period of shortage in housing supply coincides with the period of rapid house price appreciation whereby price of houses in Malaysia escalated over the period 2010Q1 to 2012Q2 with an annual average increase of 9.1% as measured by the Malaysian House Price Index (BNM, 2012).

Table 1.3 Housing stocks in Malaysia (2001-2015)

Year	House price		Housing starts		Housing completions		Existing stocks	
	Index	% change	Units	% change	Units	% change	Units	% change
<i>Aggregate housing</i>								
2001	101.1	1.10	88,275	N.A.	17,787	N.A.	2,835,696	N.A.
2002	103.6	2.47	135,899	53.95	156,042	32.48	2,991,738	5.50
2003	107.7	3.96	166,143	22.25	187,178	19.95	3,237,599	8.22
2004	112.9	4.83	155,351	-6.50	164,636	-12.04	3,452,369	6.63
2005	115.6	2.39	151,022	-2.79	180,075	9.38	3,647,887	5.66
2006	117.8	1.90	142,594	-5.58	170,962	-5.06	3,850,568	5.56
2007	124.0	5.26	133,948	-6.06	181,123	5.94	4,046,978	5.10
2008	129.8	4.68	108,012	-19.36	134,334	-25.83	4,203,260	3.86
2009	131.8	1.54	86,743	-19.69	103,335	-23.08	4,325,650	2.91
2010	140.7	6.75	84,486	-2.60	99,866	-3.36	4,435,736	2.54
2011	154.6	9.88	115,578	36.80	65,866	-34.05	4,512,665	1.73
2012	172.8	11.77	138,407	19.75	73,788	12.03	4,631,607	2.64
2013	192.9	11.63	146,210	5.64	81,639	10.64	4,725,109	2.02
2014	211.0	9.38	171,146	17.05	107,747	31.98	4,848,030	2.60
2015	226.7	7.44	188,757	10.29	80,850	-24.96	4,928,883	1.67
<i>Detached housing</i>								
2001	104.8	4.80	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2002	105.3	0.50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2003	106.5	1.10	4,600	N.A.	3,956	N.A.	356,756	N.A.
2004	116	8.90	3,531	-23.24	3,967	0.28	366,947	2.86
2005	120.7	4.10	3,442	-2.52	3,062	-22.81	371,287	1.18
2006	128.3	6.30	4,654	35.21	4,713	53.92	385,098	3.72
2007	137.5	7.20	4,066	-12.63	3,457	-26.65	389,883	1.24
2008	146.1	6.30	3,807	-6.37	2,262	-34.57	392,897	0.77
2009	142.8	-2.30	2,379	-37.51	2,831	25.15	398,674	1.47
2010	153.4	7.40	4,089	71.88	1,840	-35.01	400,710	0.51
2011	161.4	5.20	4,492	9.86	2,028	10.22	402,762	0.51
2012	180.4	11.80	6,121	36.26	2,157	6.36	423,902	5.25
2013	209.9	16.40	5,739	-6.24	4,789	122.02	426,696	0.66
2014	225.6	7.50	5,033	-12.30	3,760	-21.49	431,474	1.12
2015	245.3	8.80	4,568	-9.24	2,232	-40.64	434,082	0.60
<i>High-rise housing</i>								
2001	102.8	2.80	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2002	96.7	-5.90	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2003	111.3	15.10	58,995	N.A.	78,683	N.A.	854,863	N.A.
2004	113	1.50	52,668	-10.72	58,790	-25.28	932,828	9.12
2005	114.1	1.00	58,134	10.38	78,008	32.69	1,022,065	9.57
2006	115.5	1.20	52,891	-9.02	61,626	-21.00	1,098,285	7.46
2007	118.8	2.90	50,979	-3.61	74,366	20.67	1,176,692	7.14
2008	121.7	2.40	33,680	-33.93	57,093	-23.23	1,247,269	6.00
2009	123.4	1.40	27,411	-18.61	29,385	-48.53	1,283,173	2.88
2010	131	6.20	19,165	-30.08	43,778	48.98	1,333,289	3.91
2011	145.5	11.10	38,973	103.36	17,010	-61.14	1,351,925	1.40
2012	176.7	21.40	49,667	27.44	19,284	13.37	1,381,233	2.17
2013	207.3	17.30	60,151	21.11	20,387	5.72	1,409,074	2.02
2014	229.4	10.70	62,791	4.39	36,692	79.98	1,446,137	2.63
2015	234.4	2.20	109,057	73.68	21,808	-40.56	1,479,762	2.33

Note: N.A. denotes data are not available on the respective year.

Source: Property Stock Reports, Property and Valuation Services Department (JPPH).

Table 1.3(continue) Housing stocks in Malaysia (2001-2015)

Year	House price		Housing starts		Housing completions		Existing stocks	
	Index	% change	Units	% change	Units	% change	Units	% change
<i>Semi-detached housing</i>								
2001	102.6	2.60	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2002	102	-0.60	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2003	106.1	4.00	11,380	N.A.	10,028	N.A.	200,523	N.A.
2004	115.8	9.10	12,319	8.25	12,935	28.99	213,773	6.61
2005	119.9	3.50	13,427	8.99	11,080	-14.34	226,113	5.77
2006	121.6	1.40	12,228	-8.93	11,166	0.78	238,023	5.27
2007	130.4	7.20	12,724	4.06	12,759	14.27	251,804	5.79
2008	135.8	4.10	13,022	2.34	10,718	-16.00	263,385	4.60
2009	138.6	2.10	9,131	-29.88	12,086	12.76	276,406	4.94
2010	149.1	7.60	11,645	27.53	9,374	-22.44	286,739	3.74
2011	162.5	9.00	15,213	30.64	8,437	-10.00	296,481	3.40
2012	177.5	9.20	16,542	8.74	10,732	27.20	311,321	5.01
2013	199.1	12.20	16,345	-1.19	10,232	-4.66	322,349	3.54
2014	214.1	7.50	16,472	0.78	11,916	16.46	335,677	4.13
2015	230.7	7.80	13,615	-17.34	9,405	-21.07	346,785	3.31
<i>Terraced housing</i>								
2001	100	0.00	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2002	104.8	4.80	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2003	108	3.10	91,168	N.A.	94,511	N.A.	1,825,457	N.A.
2004	112.3	4.00	86,833	-4.75	88,944	-5.89	1,938,821	6.21
2005	114.5	2.00	76,019	-12.45	87,925	-1.15	2,028,422	4.62
2006	116.6	1.80	72,821	-4.21	93,457	6.29	2,129,162	4.97
2007	121.2	3.90	66,179	-9.12	90,541	-3.12	2,228,599	4.67
2008	127.4	5.10	57,503	-13.11	64,261	-29.03	2,299,709	3.19
2009	129.9	2.00	47,374	-17.61	59,033	-8.14	2,367,397	2.94
2010	138.3	6.50	49,587	4.67	44,834	-24.05	2,414,760	2.00
2011	153	10.60	56,900	14.75	38,391	-14.37	2,461,259	1.93
2012	170	11.10	62,471	9.79	40,789	6.25	2,514,087	2.15
2013	187	10.00	63,544	1.72	46,231	13.34	2,566,990	2.10
2014	207.3	10.90	71,371	12.32	44,511	-3.72	2,618,503	2.01
2015	220.2	6.20	61,143	-14.33	41,808	-6.07	2,668,254	1.90

Note: N.A. denotes data are not available on the respective year.

Source: Property Stock Reports, Property and Valuation Services Department (JPPH).

Meanwhile, housing starts in Malaysia are above 100,000 units except in 2009 and 2010 during GFC. Housing starts increased at a negative rate between 2004 and 2010 but increased positively in relation to the optimistic growth in house prices between 2011 and 2015. In addition, the stock of existing dwellings increased at 5%–8% per annum before 2008 while the rate fell to 1%–3% thereafter.

Among the four types of houses, terraced housing has the highest supply. It recorded 2,668,254 units of existing stocks in 2015 which was about 54% of total existing housing stocks in the country. This was followed by high-rise, detached and semi-detached houses that formed 30%, 9% and 7% respectively, of total existing stocks in 2015. In terms of price changes between 2001 and 2015, detached housing has experienced the largest increase in price which has increased by 134%. This was followed by high-rise, terraced and semi-detached house prices with an increase of 128%, 120% and 117% respectively between 2001 and 2015.

Although the mismatch between housing demand and supply according to types of housing has not been reported by the authority of Malaysia, we can observe that the escalating house prices of different types of houses has not matched with the increases in housing starts or housing completions during 2001-2015. For landed properties such as detached, semi-detached and high-rise houses, the average annual increase in house prices during the period exceeded the average annual increase in housing starts and housing completions. Detached house prices has increased at an average rate of 6.27% annually compared to the average annual increase of housing starts and housing completions whereby both has increased at a lower rate of 3.60% and 3.07% respectively. For semi-detached houses, the average annual increase in house price was 5.78% while the housing starts and housing completions only increased by 2.83% and 1.00% respectively. The supply of terraced housing has declined during the period despite the increase in terraced house prices. Housing starts and housing completions of this type of housing declined at an average annual rate of 2.70% and 5.80% respectively while its house price increased at 5.47%. Lastly, high-rise housing is the only type of housing that experienced a greater

increase in supply than the increase in price. High-rise housing starts has increased by 11.20% while its price only increased by 6.09%.

1.2.2(d) Housing and inflation

Although the inflation rate in Malaysia was low in the past, several sudden events have caused changes in the general price level. Firstly, implementation of Goods and Services Tax (GST) caused a rise in the price level. Secondly, the abolishment of petrol subsidies exposed Malaysian households (at the same time the property investors) to greater fluctuation in the world oil market. Lastly, the weakening of Ringgit caused higher prices and costs in the country. These events could have raised the general price level in Malaysia and erode the real return of an investment.

Table 1.4 compares housing returns and percentage changes in consumer price index as well as percentage changes in crude oil price. Normally, during the period of rising inflation (% change in Consumer Price Index [CPI]) e.g. from 2004 to 2006, housing returns declined. This period corresponded with unprecedented surge in crude oil prices. Crude oil prices increased more than 30% in 2004 and 2005. Between 2007 and 2008, crude oil prices again recorded a high percentage increase of 37.8% and this was reflected through the highest consumer inflation of 5.4% in 2008. During GFC, crude oil prices declined with a negative percentage change in 2009. Consumer inflation was at the lowest rate of 0.6% in the year 2009. After GFC, housing returns of almost all types of houses increased steadily and exceeded the rate of consumer inflation. Housing returns after 2012 exceeded the percentage change in crude oil prices when crude oil prices dropped severely.

Table 1.4 Housing returns and percentage changes in CPI and WTI

	Housing returns (% change)					CPI (% change)	WTI (% change in \$/barrel)
	Malaysia	Terraced	Semi- Detached	Detached	High- Rise		
2000	6.0	6.7	6.3	5.3	1.9	1.5	57.1
2001	1.1	0.0	2.6	4.6	2.8	1.4	-14.5
2002	2.5	4.7	-0.6	0.8	-5.9	1.8	0.8
2003	4.0	2.9	4.0	1.3	15.1	1.2	18.7
2004	4.8	3.7	9.1	8.7	1.5	1.4	33.6
2005	2.4	2.1	3.5	4.1	1.0	3.0	36.4
2006	1.9	1.6	1.3	6.1	1.2	3.6	16.6
2007	5.3	3.9	7.2	7.2	2.9	2.0	9.5
2008	4.7	4.9	4.1	6.3	2.4	5.4	37.8
2009	1.5	2.0	2.1	-2.3	1.4	0.6	-37.8
2010	6.7	6.5	7.6	7.4	6.2	1.7	28.3
2011	9.9	10.6	9.0	5.2	11.1	3.2	19.4
2012	11.8	11.1	9.2	11.8	21.4	1.6	-0.9
2013	11.6	10.0	12.2	16.4	17.3	2.1	4.2
2014	9.4	10.9	7.5	7.5	10.7	3.2	-4.9
2015	7.4	6.2	7.8	8.8	2.2	2.1	-47.8

Source: HPI are collected from NAPIC, CPI from BNM and WTI from US Energy Information Administration.

1.2.2(e) The Malaysian Housing Policies

Housing delivery in Malaysia is undertaken by both private and public sectors. The private sector consists of large and small-scale developers, cooperative societies, and groups of individuals (Ooi, 2005). Furthermore, private sector is involved actively in providing high and medium cost housing as well as low cost houses. On the other hand, the public sector consists of various ministries and government agencies at national and state levels. Authorities from the Federal Government involve the Ministry of Urban Wellbeing, Housing and Local Government (MHLG), the Ministry of Rural and Regional Development (MRRD), the Ministry of Agriculture, and the Ministry of Finance (MoF) through Syarikat Perumahan Negara Berhad (SPNB) and Perbadanan PR1MA Malaysia. Some of the state economic development corporations also contribute to public housing at state level, particularly in urban areas, such as the Penang Development Corporation, the Selangor State

Development Corporation, and the Negeri Sembilan State Development Corporation (The Ministry of Urban Wellbeing, Housing and Local Government, 2013).

According to the Ministry of Urban Wellbeing, Housing and Local Government (2013), housing affordability remains an issue of concern in Malaysia, especially in urban areas with high population growth, such as Kuala Lumpur, Penang, and Johor. The Eleventh Malaysia Plan reports that households in most major cities in Malaysia cannot afford to buy houses because house prices are beyond the World Bank's standard of housing affordability index, which is three times the annual household income (Economic Planning Unit [EPU], 2015). The house prices median is four times greater than annual household income median between 2002 and 2014, while in 2014 it was recorded to be 4.4 times (Khazanah Research Institute, 2015). The sharp increase in house prices has affected many house buyers, especially first-time buyers.

In view of this, the National Housing Policy (NHP) was launched on 10 February 2011. The goal of NHP is to ensure that all Malaysians, particularly the low- and medium-income groups, have access to adequate, affordable, and quality housing. Three objectives of NHP are: 1) providing adequate and quality housing with comprehensive facilities and a conducive environment, 2) enhancing the capability and accessibility of people to own or rent houses, and 3) setting future direction to ensure sustainability of the housing sector (National Housing Department, 2011). Under the NHP, private sector and state governments are encouraged to be more involved in providing affordable houses for all, especially low- and middle- income groups.